

AMSAT News Service Weekly Bulletins

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AMSAT NEWS SERVICE

ANS-309

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an

active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org

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ANS-309 AMSAT News Service Weekly Bulletins

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>From AMSAT HQ SILVER SPRING, MD.

November 4, 2012

To All RADIO AMATEURS

BID: \$ANS-309.01

President's Update Given at AMSAT-NA Annual Meeting in Orlando

AMSAT President Barry Baines, WD4ASW gave a presentation to members at the 30th Space Symposium and Annual General Meeting in Orlando, Florida on Saturday, October 27.

Barry noted the significant strides AMSAT has accomplished in the area of education outreach reflected by the appointment of Mark Hammond, N8MH, as AMSAT's VP-Educational Relations. Over the past year Mark has been developing a team to enhance our capabilities in this area and worked with the ARRL to develop new approaches to STEM education that will translate into future opportunities in space.

Barry provided a summary of additional accomplishments for 2012:

- + Fox selection by NASA for an ELaNa Launch based on our STEM educational activities.
- + The Fox-1 project is on schedule planning for launch in the 2nd

half of 2013.

- + The Engineering Team has developed a capable and motivated staff.
- + Evolving partnerships for future launch opportunities are under way.
- + AMSAT has continued to deal with ITAR issues. The publication of the Fox design in the Symposium Proceedings book opens the path to placing the work in the public domain which is expected to relieve many ITAR issues going forward.
- + Appointment of Frank Bauer, KA3HDO as VP-Human Spaceflight will allow AMSAT to develop additional opportunity in this area.
- + Implementation of the new ARISS school selection process.
- + Re-establishment of the AMSAT store on-line.
- + Steps are being taken to revive the AMSAT Journal. Appointment of JoAnne Maenpaa, K9JKM as the new Editor.
- + ANS is a world-class distributor of information about amateur radio in space. One new ANS Editor has joined the weekly rotation with openings for additional volunteers.

Many details of AMSAT's future partnerships for launch opportunities will be published in the AMSAT Journal. A link to the President's Report will be added to our <http://www.amsat.org> web page.

[ANS thanks AMSAT President Barry Baines, WD4ASW for the above information]

Update on A0-27 Recovery Work

A0-27 Command Station Michael Wyrick, N3UC provides updates on the team's attempts to recover the satellite on their web page. They are working to return A0-27's FM repeater back to service after it stopped responding on October 5.

In early October A0-27 was restored back to running on its primary Bootloader. Control operators were able to turn on the Transmitter for a short time on several occasions. Also required were multiple recoveries the stuck AFSK modem which was one of the initial symptoms of the problems.

During recovery efforts A0-27 crashed once again on October 16. The command team once again recovered to the bootloader state, recovered from another occurrence of the AFSK modem problem and once again performed another software upload.

On October 18 the transmitter was left ON in an attempt to discharge the batteries with the hope that faults could be cleared. Once the battery was recharged last week the high-level EOS software aboard A0-27 ran for a few seconds before locking up. The team was able to reset it back to the bootloader. Dumps indicate it is locking up while fetching telemetry from the hardware. Michael, N3UC, wrote, "It does not look like there will be a quick resolution to this crash."

ATTENTION OPERATORS: To prevent interfering with the command team's recovery efforts, if you can't hear A0-27 in Analog mode, please don't transmit to it.

The latest A0-27 news is posted on its webpage:
<http://www.ao27.org/A027/index.shtml>

Mode V/U (J) FM Voice Repeater Frequencies

Uplink 145.8500 MHz FM
Downlink 436.7950 MHz FM

[ANS thanks A0-27 Command Station Michael Wyrick, N3UC for the above information]

Successful ARISS School Contacts

Japan

Meikei High School in Tsukuba, Japan participated in an Amateur Radio on the International Space Station (ARISS) contact on Tuesday, October 23. Students from the science club, who are studying orbital mechanics and amateur radio satellite communications, used their own radio station, JJ1YAF to make the call to on-orbit astronaut Akihiko Hoshide, KE5DNI, an alumnus of the school. The contact was conducted in Japanese. Approximately 60 people were in attendance and media coverage included 4 newspapers as well as the Japan Broadcasting Corporation, NHK.

Massachusetts

On Friday, October 26, students from East Falmouth Elementary School in East Falmouth, Massachusetts took part in a successful Amateur Radio on the International Space Station (ARISS) contact with Sunita Williams, KD5PLB. Students asked 18 questions concerning what it is like to live in space and the experiments conducted on the Space Station. The contact was integrated into science lessons about the solar system, global climate changes on Earth and the advances in science and technology generated by space exploration. Over 100 students and guests were in attendance and reporters from two newspapers were present. Video of the event is posted at:
<http://tinyurl.com/ARISS-Falmouth> (YouTube)

Three Successful ARISS Contacts on October 30

South Florida Science Museum (SFSM), West Palm Beach, Florida had a successful Amateur Radio on the International Space Station (ARISS) contact on Tuesday, October 30. SFSM and the West Palm Beach Amateur Radio Club, WPBARC, which maintains a radio station within the museum, worked with area teachers to provide educational content to students emphasizing NASA, the ISS and amateur radio. Read the details of the wide media coverage of this event as reported in ANS-302:
<http://amsat.org/pipermail/ans/2012/000661.html>

An Amateur Radio on the International Space Station (ARISS) contact was successful with the Southern Tier Catholic and Archbishop Walsh Academy, Olean, New York on Tuesday, October 30 via telebridge station IK1SLD in Italy. The contact was part of a comprehensive education curriculum which will pique students' interest in Science, Technology, Engineering and Mathematics (STEM).

Cumberland Elementary School, West Lafayette, Indiana had a successful Amateur Radio on the International Space Station (ARISS) on Tuesday, October 30. The contact was integrated into a curriculum covering topics on space research, robotics and engineering. Other activities planned include night sky observations, model rocketry and electrical circuit projects.

[ANS thanks Carol, KB3LKI, and the Amateur Radio on the International Space Station (ARISS) Status Report for the above information]

Flabob Airport Preparatory Academy ARISS Contact Wins PR Award

As Clint Bradford, K6LCS of Jurupa Valley said, "It was 13 months of planning for 10 minutes of conversation, but, oh!, what a conversation!"

"'LIVE! 📡 from outer space!' Students speak to an astronaut in the orbiting International Space Station" was the special event on April 19, 2012 that earned an award for Karen and Clint Bradford in annual competition by the Public Relations Society of America. The event was planned for the 120 students of Flabob Airport Preparatory Academy and more than 80 parents, community leaders, media representatives and interested persons.

Clint initiated the event because of his hobby in ham radio and volunteer position with NASA through Amateur Radio on the International Space Station (ARISS): He provides school technical support for students in North America to talk to astronauts aboard the orbiting space station. NASA's "Teaching from Space" program is available to any school that applies, but the typical wait-time from application to event is three years.

He approached Kathy Rohm, vice president and director of community relations at Flabob Airport Preparatory Academy, which is supported by the Tom Wathen Center. She was enthusiastic to sponsor the literally out-of-this-world, once-in-a-lifetime special event to inspire students. More than 2,900 emails flew between Clint, Kathy, NASA, Flabob staffer Nina Bentham and ARISS volunteers to produce the event.

NASA-Houston flight director Phil Engelauf, who grew up in Rubidoux and whose mother, Beverly, still lives here, was invited to the event.

His duties prevented him from attending, but he sent warm regards to the students in a special message that is posted at the event's Web site - <http://iss-flabob.com> (on the blog).

The event went according to plan, except for a momentary glitch with audio quality, despite having tested the system for three days preceding the event. Clint quickly figured out a solution, although he later said that he was only 90 seconds from NASA terminating the call if he had not succeeded.

"When we looked around the hangar at the conclusion of the contact, hearing the students' whoops of happiness, we saw more than a few adults wiping at their eyes 📡 us included," Karen said. "We felt intensely rewarded to think how our students may feel throughout their lives when they look up in the sky and remember the thrilling day

when Flight Engineer Don Pettit answered their questions."

Student Brittany Cain had asked, "Besides missing your family and friends, what is the biggest adjustment you have made for this mission?" The assembled group laughed when Pettit replied he missed not being able to take a bath for six months!

The mission of Flabob Airport Preparatory Academy is to use aviation as a tool to motivate students to achieve their personal, academic, and career goals.

Current statistics reveal that American students severely lag behind their foreign peers: In a study of 31 countries, the Organization for Economic Cooperation and Development ranked Americans 21st in science and 25th in math. Consequently, President Obama launched the Educate to Innovate Campaign in 2009 to unite teachers, parents, businesses and students toward excellence in STEM (science, technology, engineering and math) studies.

Karen is a current member and past president of PRSA's California Inland Empire Chapter. There are more than 80 local members.

[ANS thanks the Public Relations Society of America and Clint Bradford, K6LCS for the above information]

Hurricane Damage Delays First Cuba National Satellite Meeting

The first National Meeting of Cuba's new Grupo de Radioaficionados para Operaciones Satelitales, GROS which was scheduled for November 8-11 has been delayed due to the severe impact caused by Hurricane Sandy last week to the eastern provinces of Cuba. Raydel Espinet CM2ESP reports the meeting will now be delayed to January, 2013.

The Meeting location at Camaguey did not receive any damage but the provinces of "Santiago de Cuba", "Holgu n" and "Guant namo" were badly affected and many houses, schools and factories lost their roofs or were damaged by fallen trees. Several ham radio operators lost their houses.

Most of the state resources are now been prioritized to assist to the people of this three provinces that lost their houses. Under this circumstances we were asked to reschedule the National Meeting and the Coordination Board agreed with the request as a solidarity to our colleagues.

Many other activities the National Amateur Radio Federation (F.R.C.) had scheduled were also postponed included its National Council.

We are working on possible dates not sooner than January. We sorry for all of the inconvenience and the G.R.O.S. Coordination Board (Grupo de Radioaficionados para Operaciones Satelitales) will announce the new date when possible.

We still have great hopes with this First Meeting and during this extra months we will work harder to improve our work and make it better.

When the meeting convenes there are plans for a special call sign T47G, which will be active every day on HF and satellites, in the

grid FL11. There are 4 conferences, 4 workshops, 1 exposition and as many demonstrations as passes currently scheduled.

In the meantime the G.R.O.S VHF FM Net devoted entirely to the Amateur Radio Satellites continues to meet on 145.550 MHz. The net will be on the air every Friday from 19:00 to 20:00 local time in Havana. CM2ESP is the Net Control Station.

They are looking forward to hear about Hector's (C06CBF) experience and stories about his participation in the AMSAT Symposium in Orlando during this First Meeting. The Group also wants to thanks to Patrick, WD9EWK, and all the people at AMSAT for their very important support to Hector. We want to send a big congrats to Hector too.

[ANS thanks GROS Coordinator Raydel Abreu Espinet, CM2ESP for the above information]

Special Symposium Visitor Hector Martinez, C06CBF Back Home

Hector Martinez, C06CBF traveled from Cuba to the AMSAT Symposium in Orlando last week. AMSAT had extended an invitation for Hector to attend and to make a presentation. Thanks to the work done by Patrick Stoddard, WD9EWK/VA7EWK, Hector was able to obtain a visa to come to the United States for the Symposium.

Patrick, WD9EWK posted an update, "On my way home from the airport, I called Hector. He made it home OK, and is now in the process of clearing the gear he brought back from Florida through the processes of Cuban Customs and the Cuban communications ministry. This is normal, and he was confident he could get everything cleared without incident. Hector also said he hopes to be able to post a message to thank everyone that helped make his trip to Florida possible."

Patrick says he incurred expenses related to bringing Hector to the Symposium totaling \$2413.30. Upon returning home he found he has received contributions totaling \$1960.00 for the "Hector fund". He wrote, "If there are other contributions in the mail, I will add that to my spreadsheet and post an update later. I don't think I will need any other contributions toward this effort. THANK YOU ALL!"

Video of Hector's presentation at the Symposium, "Working Satellites With a Homebrew Setup, Cuban Style" is posted on-line at:
<http://www.youtube.com/watch?v=cmIubIBQ4>

Hector, C06CBF wrote, "It was a wonderful trip! Thanks very much to everyone who helped to come true this wonderful dream. I will never forget your help, solidarity and good wishes on this long process. I really appreciate it! My special thanks to the AMSAT Board of Directors and to Patrick WD9EWK who did an exceptional job on this process. The amateur radio by satellites is more than interchange grid locators; the AMSAT community is like a big family. Thanks very much again."

[ANS thanks Patrick Stoddard, WD9EWK/VA7EWK and Hector, C06CBF for the above information]

F-1 Amateur Radio CubeSat Update

News posted on the AMSAT-UK web reports Thu Trong Vu XV9AA has provided this update on F-1:

The attempts to recover the CubeSat are now focusing on reception of the backup UHF FM channel 437.485 MHz (+/-10 kHz Doppler shift). This FM beacon should transmit Morse Code for 20 seconds every minute during daylight.

The team would appreciate any reports of the beacon which can be sent to Thu Trong Vu XV9AA at thuvt@fpt.edu.vn

November 2, 2012, FSpace laboratory, FPT University issued an official report stating that no signal is heard from F-1 CubeSat after its deployment to space from the International Space Station (ISS) a month ago. However, the project team confirms that they are working to troubleshoot the problem.

According to Thu Trong Vu XV9AA, Project Manager, "As soon as F-1 was deployed from the ISS, FSpace's ground station in Hanoi and other amateur radio stations around the world have been listening on F-1's frequencies 145.980 MHz and 437.485 MHz but so far nothing heard except for a few uncertain reports of a weak signal during the first few days.

Preliminary analysis points to failure of the satellite's power supply subsystem as the cause of the problem. At the moment FSpace team together with US partner NanoRacks are collecting information, analyzing different scenarios that could happen to the satellite in orbit and experimenting with the Engineering Model (an identical backup unit) of F-1 CubeSat in the laboratory to determine the problem. The team is also planning to send uplink commands to the satellite in an effort to restart the onboard microcontroller. However, the chance of recovery is slim, the team acknowledged.

Currently, F-1 CubeSat is orbiting the Earth at an average altitude of 400km (perigee 390 km, apogee 410 km) and being tracked by NORAD as object #38855. Its altitude decreases with time due to friction with the atmosphere (atmospheric drag) and summarized in the following table. According to orbital analysis, the satellite has an orbital lifetime of about 5 months (until March 2013) before descending low and burn up completely in the atmosphere.

F-1's mission goals are to "survive" the space environment, taking

photos of the Earth and communicating with the ground control station at a speed of 1200 bit per second. Mr Thu said: "Although we haven't heard from F-1, during the course of the project team members have learned valuable knowledge and gained practical experience in developing a pico-satellite. This is an important stepping stone for us to move forward in the long journey to the stars".

F-1 frequencies:

- + 145.980 MHz: main channel, 1.0W RF output, FM, AFSK 1200bps, one telemetry packet every 30 seconds, operates in the dark by default (but can be commanded later to operate in sunlight as well)
- + 437.485 MHz: backup channel, 0.2W RF output, FM, PWM CW beacon, each beacon transmission lasts about 20 seconds then 60 seconds delay, only operates in sunlight

More information and guide to download F-1 telemetry decoder can be found at http://fspace.edu.vn/?page_id'. Decoded data can be submitted to us via the telemetry decoder or by sending directly to: thuvt at fpt.edu.vn. Audio recordings are highly appreciated.

Read the full article at: <http://www.uk.amsat.org/?p280> - and - <http://www.uk.amsat.org/?p322>

[ANS thanks AMSAT-UK and the F-1 CubeSat Team for the above information]

2013 CanSat Competition Applications Due November 30

Applications currently are being accepted for the 2013 CanSat Competition.

This annual competition is open to university and college students from the United States, Canada, Mexico and other countries. Teams of three to 10 students must design, build and launch a sensor payload called a CanSat. Each CanSat is slightly larger than a soda can and must be built according to the specifications released by the competition organizing committee.

All teams entering the CanSat competition are required to have a faculty adviser. The faculty adviser will oversee and be responsible for the conduct of the team at all times during the competition. The advisor is strongly encouraged to accompany the team to the competition.

Applications are due Nov. 30, 2012.

For more information about the competition and to download the application, visit <http://www.cansatcompetition.com/>.

Questions about this competition should be directed to: questions@juno.nrl.navy.mil.

[ANS thanks NASA Education Express for the above information]

NASA Offers Spot The Space Station Service Via Text or E-mail

WASHINGTON -- On the 12th anniversary of crews continuously living and working aboard the International Space Station, NASA announced Friday a new service to help people see the orbiting laboratory when it passes overhead. "Spot the Station" will send an email or text message to those who sign up for the service a few hours before they will be able to see the space station.

"It's really remarkable to see the space station fly overhead and to realize humans built an orbital complex that can be spotted from Earth by almost anyone looking up at just the right moment," said William Gerstenmaier, NASA's associate administrator for human exploration and operations. "We're accomplishing science on the space station that is helping to improve life on Earth and paving the way for future exploration of deep space."

When the space station is visible -- typically at dawn and dusk -- it is the brightest object in the night sky, other than the moon. On a clear night, the station is visible as a fast moving point of light, similar in size and brightness to the planet Venus. "Spot the Station" users will have the options to receive alerts about morning, evening or both types of sightings.

The International Space Station's trajectory passes over more than 90 percent of Earth's population. The service is designed to only notify users of passes that are high enough in the sky to be easily visible over trees, buildings and other objects on the horizon. NASA's Johnson Space Center calculates the sighting information several times a week for more than 4,600 locations worldwide, all of which are available on "Spot the Station."

Nov. 2 marks 12 years of continuous human habitation of the space station.

To sign up for "Spot the Station," visit:
<http://spotthestation.nasa.gov>

For information about the International Space Station and a full list of sightings, visit: <http://www.nasa.gov/station>

ANS thanks NASA for the above information]

Satellite Shorts From All Over

- + Jan Poppeliers, ON7UX has put together a short video compilation of the AMSAT-UK Colloquium held in Guildford September 14-16: <http://tinyurl.com/Colloquium-ON7UX> (Southgate). Video of all of the Colloquium presentations can be found at: http://www.uk.amsat.org/?page_id953
- + Video of the launch of the Progress 49 cargo craft headed for the ISS can be viewed on-line at: http://www.youtube.com/watch?feature=player_embedded&v=0tD7pg4htU
This flight took advantage of the new abbreviated four-orbit rendezvous with the ISS. This flight was slated to bring a new VHF amateur radio handheld to the ISS. Due to crew scheduling the new radio is not planned to be activated until early 2013.
- + Update your keps! Russian Mission Control said the orbit of the International Space Station (ISS) was raised on Thursday by one kilometer to avoid a possible collision with US Iridium-33 satellite debris. The maneuver to adjust the station's orbit lasted about seven minutes. The orbital readjustment was made using the thrusters of Russia's Progress- M-16M spacecraft, docked with the station.
- + A report on Space-Travel.com says "Japan Plans to Launch New Carrier Rocket in 2013." JAXA announced the Epsilon carrier rocket to replace their M-5 Rocket. Epsilon's goal is to have an inexpensive rocket to launch compact low-cost satellites into orbit. Read the full story posted at: <http://tinyurl.com/Japan-Epsilon>.
- + South Korea sets new window for rocket launch. South Korea said Monday it would make another attempt to send a satellite into space sometime during a November 9-24 window from the Naro Space Centre on the south coast next month after a scheduled rocket launch last

- week was cancelled because of a technical glitch. Read the full posted at: <http://tinyurl.com/SK-Launch-Delay>
- + Enjoy a video that will take you from the Big Bang to our current human state in 90 seconds at: <http://tinyurl.com/Life-in-90-seconds> (UniverseToday.com)
 - + NASA TV posted a video segment filmed from an altitude of 254 statute miles using external cameras on the ISS as it captured views of Hurricane Sandy on October 29, 2012 as it barreled toward a landfall along the New Jersey coastline: <http://tinyurl.com/ISS-Sandy> (YouTube)
 - + A timelapse video of NASA GOES-13 weather satellite photos of Sandy can be viewed at: <http://tinyurl.com/goes13-Sandy> (YouTube)
 - + Prior to a successful splash down of the first commercial cargo delivery to the ISS, SpaceX posted a video of Dragon's departure. The frames are speeded up 15X to show the entire departure sequence from the ISS: <http://tinyurl.com/SpaceX-Departure> (YouTube)
 - + 13-14 November - total solar eclipse in a narrow band of the Earth's surface, running across northern Australia and into the South Pacific and across the international dateline. The eclipse peaks at 22:11 UT. Observers in all of Australia, New Zealand, and parts of southern Chile will see a partial solar eclipse (with proper solar filters, of course). Details posted at: <http://eclipse.gsfc.nasa.gov/SEplot/SEplot2001/SE2012Nov13T.GIF>
 - + The next Hudson Valley Satcom net date is Thursday, November 8 at 9 PM EST (UTC-5) on the 146.97 MHz MBARC Repeater (PL 100). An echolink connection is available on the N2EYH-L node. More information at: <http://www.hvsatcom.org>. (Stu, WA2BSS)

[ANS thanks everyone for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information. And with that, please keep in mind that Sgr-A*, the 26,000 light-year distant black hole in the middle of our Milky Way galaxy, is consuming a gas cloud so large that it will take a decade, 2010 to 2020, to complete the encounter. Currently the dust in the cloud is approximately twice as hot as the surface temperature on Earth. The hydrogen gas in the cloud is twice as hot as the surface of the sun. A year from now temperatures in the cloud will become detectable to radio and X-ray telescopes on Earth as well as orbiting satellites such as NASA's Chandra X-ray Observatory.

73,

This week's ANS Editor,
JoAnne Maenpaa, K9JKM